applying an overlapped reversible wavelet transform to the input data to produce a series of coefficients; and

compressing the series of coefficients into data representing a compressed version of the input data, including context modeling bits of each of the series of coefficients based on known coefficients in other frequency bands and neighboring coefficients in the same frequency band.

6. (Three Times Amended) The method defined in Claim 1 wherein [the step of] compressing comprises performing bit significance embedding on the series of coefficients.

7. (Amended) The method defined in Claim 1 further comprising [the steps of]:

decompressing the losslessly compressed version of the input data into transformed signals; and

generating the input data from the transformed signals into a reconstructed version of the input data using an inverse reversible wavelet transform.

8. (Three Times Amended) A method for decoding data into original data comprising [the steps of]:

decompressing a compressed version of input data into a plurality of transformed signals, including context modeling bits of the plurality of transformed signals based on known transformed signals in other frequency bands and neighboring transformed signals in the same frequency band; and

generating a reconstructed version of original data from the plurality of transformed signals with an overlapped inverse reversible wavelet transform.

12. (Three Times Amended) A method for processing input data comprising [the steps of]:

generating a first plurality of transformed signals in response to the input data with a reversible overlapped wavelet transform using a first pair of non-minimal length reversible filters;

compressing the first plurality of transformed signals into data representing a compressed version of the input data, including context modeling the first plurality of transformed signals based on known transformed signals in other frequency bands and neighboring transformed signals in the same frequency band;

decompressing the compressed version of the input data into a second plurality of transformed signals; and

generating the input data from the second plurality of transformed signals into a reconstructed version of the input data with an inverse reversible overlapped wavelet transform using a second pair of non-minimal length reversible filters.

13. (Three Times Amended) A method for encoding input data comprising [the steps of]:

transform coding the input data into a series of coefficients with an overlapped reversible wavelet transform; and

embedded coding the series of coefficients, including the steps of ordering the series of coefficients, performing bit significance embedding on

the series of coefficients, wherein a first type of embedded coding is performed on a first portion of the data and a second type of embedded coding is performed on a second portion of the data using context modeling based upon known coefficients in other frequency bands and neighboring coefficients in the same frequency band.

16. (Amended) The method defined in Claim 13 wherein [the step of] embedded coding comprises formatting the series of coefficients into sign-magnitude format.

17. (Three Times Amended) A method for encoding input data comprising [the steps of]:

transforming input data into a series of coefficients with an overlapped reversible wavelet transform;

converting the series of coefficients into sign-magnitude format to produce a series of formatted coefficients;

coding a first portion of the series of coefficients using a first type of embedded coding to produce a first bit stream;

coding a second portion of the series of formatted coefficients using a second type of embedded coding that models data using known coefficients in other frequency bands and neighboring coefficients in the same frequency to produce a second bit stream; and

coding the first bit stream and second bit stream into a single bit stream.

32. (Amended) A decoder for decoding input data comprising:

a decompressor to decompress a compressed version of input data into a plurality of coefficients using context modeling based on known coefficients in other frequency bands and neighboring coefficients in the same frequency; and

an overlapped inverse reversible wavelet transform coupled to the decompressor to generate a reconstructed version of original data from the plurality of coefficients.

33. (Amended) The method defined in Claim 1 wherein [the step of] applying an overlapped reversible wavelet transform to the input data comprises applying non-minimal length reversible filters to produce the series of coefficients.

34. (Amended) The method defined in Claim 8 wherein [the step of] generating a reconstructed version of the original data comprises applying non-minimal length reversible filters to produce the series of coefficients.

35. (Amended) The method defined in Claim 13 wherein [the step of] transformed coding comprises applying a pair of non-minimal length reversible filters to transform code the input data into the series of coefficients.

36. (Amended) The method defined in Claim 17 wherein [the step of] transformed coding comprises applying a pair of non-minimal length reversible filters to transform code the input data into the series of coefficients.

Please add the following new claims.

44. (New) The method defined in Claim 1 wherein the overlapped reversible wavelet transform is an efficient reversible transform in that it has its determinant is equal to 1.

45. (New) The method defined in Claim 8 wherein the overlapped reversible wavelet transform is an efficient reversible transform in that its determinant is equal to 1.

46. (New) The method defined in Claim 12 wherein the overlapped reversible wavelet transform is an efficient reversible transform in that its determinant is equal to 1.

47. (New) The method defined in Claim 13 wherein the overlapped reversible wavelet transform is an efficient reversible transform in that its determinant is equal to 1.

48. (New) The method defined in Claim 17 wherein the overlapped reversible wavelet transform is an efficient reversible transform in that its determinant is equal to 1.

49. (New) The encoder defined in Claim 22 wherein the reversible wavelet filter performs an overlapped reversible wavelet transform this is efficient in that its determinant is equal to 1.

50. (New) The decoder defined in Claim 32 wherein the overlapped inverse reversible wavelet transform is an efficient reversible transform in that its determinant is equal to 1.